



**MONASH** University  
Information Technology

**FIT3031**  
**Information and network security**

**Unit Guide**

**Semester 1, 2014**

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*Last updated: 17 Feb 2014*

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# **FIT3031 Information and network security - Semester 1, 2014**

This unit will provide students with an understanding of: OSI security architecture; common information risks and requirements; operation of encryption techniques; digital signatures; public key infrastructure; authentication and non-repudiation; intrusion detection and response; firewall defence; privacy and ethics issues; security configurations to PC-based applications; and design of information systems with security compliance and security standards and protocols.

## **Mode of Delivery**

South Africa (Day)

## **Workload Requirements**

Minimum total expected workload equals 12 hours per week comprising:

(a.) Contact hours for on-campus students:

- 2 hours of lectures
- One 2-hour laboratory

(b.) Study schedule for off-campus students:

- Off-campus students generally do not attend lecture and tutorial sessions, however should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

(c.) Additional requirements (all students):

- A minimum of 8 hours independent study per week for completing lab and project work, private study and revision.

## **Unit Relationships**

### **Prohibitions**

CPE3001, CPE2007, CSE2500, GCO2831, FIT2058, FIT3018, FIT4028, GCO4831

### **Prerequisites**

One of FIT1005, FIT1031, FIT1019, FIT2008, CSE2318, CSE3318 or GCO1815

## **Chief Examiner**

Dr Nandita Bhattacharjee

## **Campus Lecturer**

### **South Africa**

**Dr. Oladayo Bello**

## **Your feedback to Us**

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through the Student Evaluation of Teaching and Units (SETU) survey. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, see:

[www.monash.edu.au/about/monash-directions/](http://www.monash.edu.au/about/monash-directions/) and on student evaluations, see:  
[www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html](http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html)

## **Previous Student Evaluations of this Unit**

The main highlights last year were the addition of:

- Weekly quizzes
- Real life problems in tutorials
- Lab exercises designed to run from students' laptop/desktop

The teaching team agreed to consider a class test based on student response to exams. This was implemented in Semester 1. But with OCL student enrolment, implementation of a class test is not feasible in Semester 2. Hence the second assignment will be a class test in summer B as well.

If you wish to view how previous students rated this unit, please go to  
<https://emuapps.monash.edu.au/unitevaluations/index.jsp>

# Academic Overview

## Learning Outcomes

At the completion of this unit students will be able to:

- describe OSI security architecture;
- describe common security standards and protocols for network security applications e.g. electronic mail, IP, web and network management;
- understand common information risks and requirements;
- explain the operation of conventional and public-key encryption techniques;
- describe the concepts and techniques for digital signatures, authentication and non-repudiation;
- understand privacy and ethics issues;
- appreciate the need for the digital certificates and public key infrastructure;
- appreciate the importance of system security against intruders and malicious software using firewalls;
- appreciate the relevance of privacy and ethics issues to organisations and individuals;
- apply simple security configurations to PC based applications e.g. email, Internet, computer administration;
- design information systems with security compliance.

## Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	OSI Security Architecture	
2	Symmetric Encryption	
3	Asymmetric Encryption	
4	Authentication Applications	
5	Web Security	
6	Wireless Network Security	Assignment 1 due on Friday, 11 April 2014
7	Email Security	
8	IP Security	
9	Intrusion detection	
10	Malicious software	Class test on Monday, 12 May 2014. The Test will cover topics from Weeks 1 to 9
11	Firewalls	
12	Network Management	
	SWOT VAC	No formal assessment is undertaken in SWOT VAC
	Examination period	LINK to Assessment Policy: <a href="http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html">http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html</a>

\*Unit Schedule details will be maintained and communicated to you via your learning system.

## Teaching Approach

### Lecture and tutorials or problem classes

The teaching and learning approach provides facilitated learning, practical exploration and peer learning, equipping you with the ability to apply skills upon completion.

### Assessment Summary

Examination (3 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Assignment 1	20%	Friday, 11 April 2014
Class Test	20%	Monday, 12 May 2014
Examination 1	60%	To be advised

# Assessment Requirements

## Assessment Policy

Faculty Policy - Unit Assessment Hurdles

(<http://intranet.monash.edu.au/infotech/resources/staff/edgov/policies/assessment-examinations/assessment-hurdles>)

Academic Integrity - Please see resources and tutorials at

<http://www.monash.edu/library/skills/resources/tutorials/academic-integrity/>

## Assessment Tasks

### Participation

#### • Assessment task 1

**Title:**

Assignment 1

**Description:**

This assignment is designed to test students' understanding of symmetric and asymmetric cryptographic concepts and how they can be applied in real world applications. In addition the concepts and network security applications in relation to web, wireless and electronic mail security will be tested.

**Weighting:**

20%

**Criteria for assessment:**

1. How well underlying principles and theories are demonstrated in the student's answer
2. The appropriateness of the formatted report style
3. The quality of the student's argument

Further details will be provided in the assignment specification.

**Due date:**

Friday, 11 April 2014

#### • Assessment task 2

**Title:**

Class Test

**Description:**

This class test is designed to test students' understanding of security protocols and standard practices, including IP security. This will be based on the topics covered in Weeks 1 to 9.

Class Test will be held on Monday, 12 May 2014. The test time and venue will be communicated during the semester. It will cover Week 1 to Week 9 topics.

**Weighting:**

20%

**Criteria for assessment:**

## Assessment Requirements

1. How well underlying principles and theories are demonstrated in the student's answer
2. The quality of the student's argument

Further details will be provided in the assignment specification.

**Due date:**

Monday, 12 May 2014

## Examinations

### • Examination 1

**Weighting:**

60%

**Length:**

3 hours

**Type (open/closed book):**

Closed book

**Electronic devices allowed in the exam:**

None

## Learning resources

Monash Library Unit Reading List (if applicable to the unit)

<http://readinglists.lib.monash.edu/index.html>

Faculty of Information Technology [Style Guide](#)

## Feedback to you

Examination/other end-of-semester assessment feedback may take the form of feedback classes, provision of sample answers or other group feedback after official results have been published. Please check with your lecturer on the feedback provided and take advantage of this prior to requesting individual consultations with staff. If your unit has an examination, you may request to view your examination script booklet, see

<http://intranet.monash.edu.au/infotech/resources/students/procedures/request-to-view-exam-scripts.html>

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments
- Quiz results
- Other: Solutions to tutes and labs will be discussed in class. Assignment feedback will be provided via comments.

## Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process: <http://www.monash.edu.au/exams/special-consideration.html>



## Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

## Assignment submission

It is a University requirement

(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-managing-pla>) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at <http://www.infotech.monash.edu.au/resources/student/forms/>. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz). Please note that it is your responsibility to retain copies of your assessments.

## Online submission

If Electronic Submission has been approved for your unit, please submit your work via the learning system for this unit, which you can access via links in the my.monash portal.

## Required Resources

Please check with your lecturer before purchasing any Required Resources. Limited copies of prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

Software:

The software used in this unit is available in the public domain. The software is PGP encryption software which is available at:

<http://www.pgpi.org/products/pgp/versions/freeware/win32>

and

<http://www.gpg4win.org/download.html>

## Prescribed text(s)

Limited copies of prescribed texts are available for you to borrow in the library.

W. Stallings. ( 2011). *Network Security Essentials: Applications and Standards*. (4th Edition) Pearson International.

## Recommended text(s)

O. Poole. (2003). *Network Security - A Practical Guide*. () Butterworth Heinemann.

J. H. Allen. (2001). *The CERT Guide to System and Network Security Practices*. () Addison-Wesley.

M. Kaeo. (2004). *Designing Network Security - A Practical Guide to Creating a Secure Network*

Assessment Requirements

*Infrastructure.* () CISCO Press.

R. Oppliger. (2003). *Security Technologies for the World Wide Web.* () Artech House.

## Other Information

### Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:

[www.policy.monash.edu.au/policy-bank/academic/education/index.html](http://www.policy.monash.edu.au/policy-bank/academic/education/index.html)

Key educational policies include:

- Student Academic Integrity Policy and Student Academic Integrity: Managing Plagiarism and Collusion Procedures ;  
<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-academic-integrity-policy.h>
- Assessment in Coursework Programs;  
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-po>
- Special Consideration;  
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.ht>
- Grading Scale;  
<http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html>
- Discipline: Student Policy;  
<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html>
- Academic Calendar and Semesters; <http://www.monash.edu.au/students/dates/>
- Orientation and Transition; <http://intranet.monash.edu.au/infotech/resources/students/orientation/>
- Academic and Administrative Complaints and Grievances Policy;  
<http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy.h>

### Faculty resources and policies

Important student resources including Faculty policies are located at

<http://intranet.monash.edu.au/infotech/resources/students/>

### Graduate Attributes Policy

<http://www.policy.monash.edu/policy-bank/academic/education/management/monash-graduate-attributes-policy.h>

### Student Charter

[www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html](http://www.opq.monash.edu.au/ep/student-charter/monash-university-student-charter.html)

### Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at <http://www.monash.edu.au/students>. For Malaysia see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>.

## Monash University Library

The Monash University Library provides a range of services, resources and programs that enable you to save time and be more effective in your learning and research. Go to [www.lib.monash.edu.au](http://www.lib.monash.edu.au) or the library tab in [my.monash](#) portal for more information. At Malaysia, visit the Library and Learning Commons at <http://www.lib.monash.edu.my/>. At South Africa visit <http://www.lib.monash.ac.za/>.

## Disability Liaison Unit

Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis.

- Website: <http://www.monash.edu/equity-diversity/disability/index.html>
- Telephone: 03 9905 5704 to book an appointment with a DLO; or contact the Student Advisor, Student Community Services at 03 55146018 at Malaysia
- Email: [dlu@monash.edu](mailto:dlu@monash.edu)
- Drop In: Equity and Diversity Centre, Level 1, Building 55, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Malaysia Campus